Berkeley, California, Site

U.S. DEPARTMENT OF ENERGY | Legacy Management

SITE CERTIFICATION SUMMARY

This Site Certification Summary provides information about the **Berkeley, California, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

Site Description and History

The Berkeley, California, Site (also known as the Gilman Hall site) is a four-story building with a sub-basement floor, located on the campus of the University of California, Berkeley. In the early 1940s, the Manhattan Engineer District (MED) and U.S. Atomic Energy Commission (AEC) used the third floor and basement areas of Gilman Hall for research. The research involved the production of minute quantities of plutonium by bombarding uranium with cyclotron-produced neutrons. Other work included verification of plutonium's existence and chemical properties and demonstrating the feasibility of chemically separating plutonium produced in the first chain-reacting pile at the University of Chicago.

Gilman Hall, University of California, Berkeley (September 1975 - Courtesy of the National Park Service).

Site Remediation Timeline

1966 — Congress designated Gilman Hall Room 307 as a National Historic Landmark.

August 1976 — The U.S. Department of Energy (DOE) conducted a radiological survey in some rooms of Gilman Hall as part of the Formerly Utilized Sites Remedial Action Program (FUSRAP).

November 28, 1979 — The DOE Office of Environmental Health and Safety (EH&S) notified the DOE Office of Nuclear Energy that the Gilman Hall site required consideration for remedial action.

June 9, 1981 — EH&S discovered additional contamination in a room not originally surveyed by DOE.

July 15-19, 1981 — EH&S surveyed all accessible surfaces in Gilman Hall.

December 1981 through February 1983 — Lawrence Berkeley Laboratory (LBL) personnel performed the remedial action decontamination and shielding of the contaminated areas.

March 26, 1985 — DOE certified that the site was remediated to current standards.

Certification Docket Contents

The Certification Docket documents the published reports that contain information supporting the certification of the site's radiological condition and contains certain other unpublished references and correspondence supporting the site's certification. Exhibit 1 briefly summarizes MED and AEC history and activities and the radiological surveys performed at the site.

Remedial Action

In 1976, DOE's radiological survey team detected low-level alpha contamination under the asphalt tile flooring in two rooms on the third floor and low levels of cesium-137 in an unused sewer line under the basement floor. Because the levels of contamination were low and removable contamination was not present, DOE took no immediate action. However, the contamination activity did exceed U.S. Nuclear Regulatory Commission guidelines for surface contamination at unrestricted facilities. In June 1981, EH&S discovered additional contamination in a room not originally surveyed by DOE; therefore, EH&S decided to survey the entire building. During this survey, which was performed in July 1981, low-levels of contamination and a few areas of removable contamination were found. Remedial activities

at the site were performed by LBL from December 1981 through February 1983 as part of FUSRAP. See the Fact Sheet for more details about the remediation.

Remediation After the June 9, 1981, Survey

EH&S received a request to survey an area after the removal of a bench. The survey detected contamination on the wall and bare concrete floor, exposed after the bench was removed. LBL personnel removed as much contamination as possible. Afterwards, a contractor rebuilt the floor and wall.

Remediation After the July 15-19, 1981, Survey

EH&S detected contamination in 12 rooms, three hallways, and six exterior alcoves. Contaminated surface types included concrete laboratory and hallway floors, plaster walls, bench tops, wooden sills leading exterior alcoves, tarred alcove floors, and exterior stucco walls.

Post-Remediation Sampling

A follow-up survey determined that contamination had been completely removed from the wall, and no radiation levels above background or removable contamination could be detected on the floor.

Remediation of these areas took place between December 1981 and February 1983. During and after each phase of decontamination work by LBL, EH&S surveyed the areas involved. In some cases, EH&S discovered additional fixed contamination during and after decontamination. In all cases, this was followed up with more decontamination or shielding. After remediation was complete, there were no radiation levels above background or removable contamination detected.

For more detailed results of the post-remediation sampling, see the Site Certification Data Summary Worksheet on page 3. For a detailed map of the site and sampling locations, see the Site Overview Map on page 4.

Current Site Conditions

Following review of the final project report, the Office of Terminal Waste Isolation and Remedial Action determined that the conditions at the Gilman Hall Site were acceptable for the current use of the site under the controls of the University's California State General License. The Office of Environmental Health and Safety at the University of California retained responsibility for monitoring any renovation or demolition work at the site. DOE has been responsible for long-term stewardship of the Berkeley site since 1985. The stewardship requirements and protocols are captured in the FUSRAP Long-Term Surveillance and Maintenance Plan, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/berkeley-california-site).

ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Berkeley, California, Site are available on the LM website at lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Berkeley.

For other information on site history or current long-term stewardship activities, please contact us at:

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03/2023

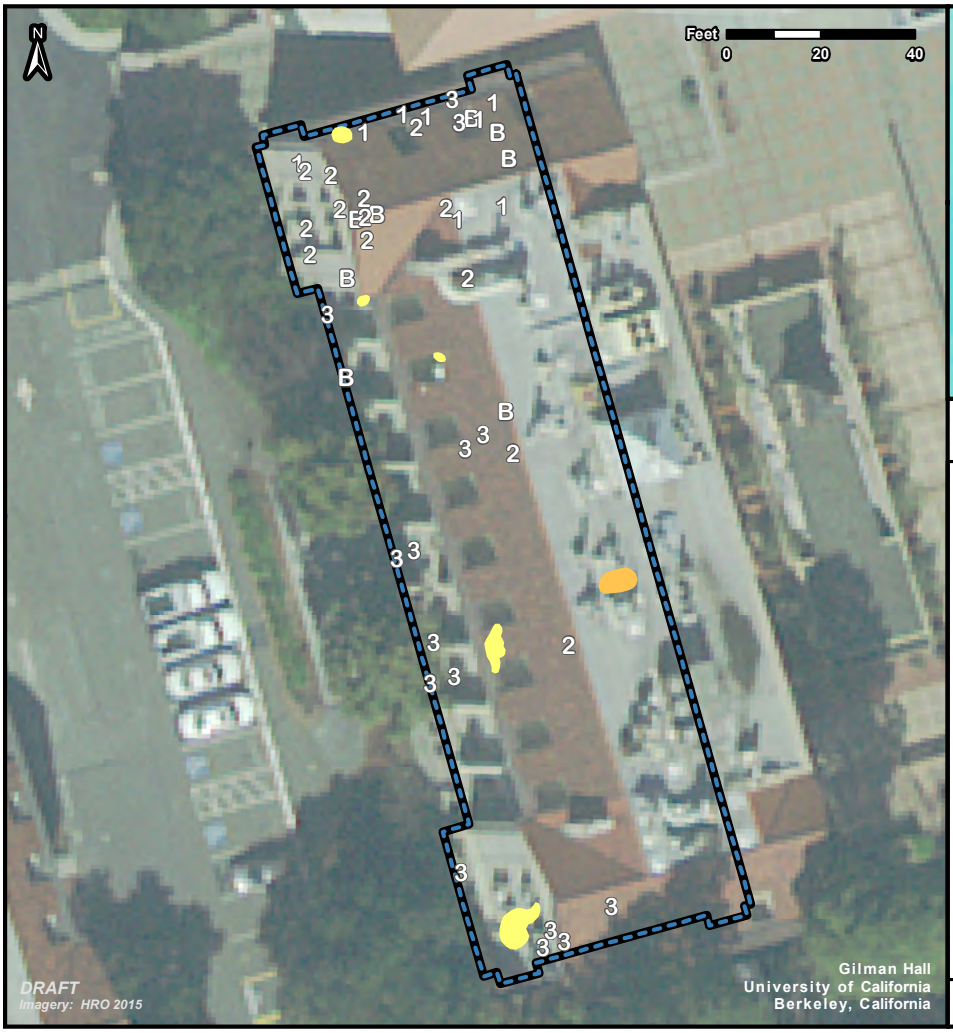
Berkeley, California, Site Certification Data Summary Worksheet

One table referenced in the Berkeley Certification Docket provided the evidence used to certify the site as clean.

When the table refers to the "Radiological Survey and Remedial Actions Report," that is the "Radiological Survey and Remedial Actions, Gilman Hall, University of California, Berkeley" report (dated March 1983). This report is referenced in the "Certification Docket for Gilman Hall, University of California, Berkeley, California" (no date).

Gilman Hall Contamination				
Appendix A in Radiological Survey and Remedial Actions Report				
Location	**Contact Dose Rate (millirem/hour)**	**Alpha Rate (dpm)**	**Removable dpm/100 cm²**	**Comments**
Sub-basement	**(no contamination)**			
Basement (ground floor)				
A, floor, rm 22	0.2	-	-	covered
B, floor, rm 22	0.2	-	-	covered
C, floor, rm 22	0.2	-	-	covered
D, floor, rm 21	0.2	-	-	removed
E, floor, rm 21	0.4	-	-	removed
F, floor, hall	0.4	10,000	-	removed
G, wall, rm 19	0.2	-	-	removed
H, wall, rm 19	0.2	-	-	removed
I, floor, wall, rm 21	2.6	-	-	from DOE survey (1976), partially removed, refilled
J, floor, rm 19	0.2	-	-	from DOE survey (1976), partially removed, refilled
K, floor, rm 19	0.4	-	-	from DOE survey (1976), partially removed, refilled
First Floor				
A, floor, rm 121	0.2	-	-	covered
B, floor, rm 121	0.2	-	-	covered
C, floor, rm 121	0.3	4,000	-	covered by bench or flooring
D, floor, rm 121	0.2	-	-	covered
E, floor, rm 121	0.2	-	-	covered
F, floor, rm 120	0.2	-	-	covered
G, floor, rm 120	0.2 to 3	-	-	several spots, all covered
H, bench, rm 121	0.2	-	-	bench top, doors, facing removed
Second Floor				
A-C, G-J, floor, rm 221	0.2 to 0.4	-	-	covered
D-F, floor, rm 22	1.5 to 5	5,000 to 10,000	200	removable from joints between slabs; all covered
K-M, floor, hall	0.2	-	-	removed
Third Floor				
A, sill & alcove door, rm 301	0.3	2,000	-	removed
B, walls, alcove, rm 301	3.5	10,000	200	removed
C, floor, alcove, rm 301	0.4	-	-	covered
D, baseboard, wall, rm 301	0.2	-	-	removed
E, sill to alcove, rm 301	0.2	-	-	removed
F, floor, table, walls, piping, or alcove, rm 307	0.2 to 0.4	-	-	floor covered; table, walls, piping removed
G, sill, alcove, rm 307	0.2	-	-	removed
H, floor, closet, rm 307	0.3	-	-	some gamma, covered with lead
I, sill, alcove, rm 311	0.2	-	-	removed
J, floor, alcove, rm 311	0.3	-	-	covered
K, floor, alcove, rm 319	0.2	-	-	covered
L, sill, alcove, rm 322	0.2	-	-	removed
M, floor, alcove, rm 322	0.2	-	-	covered
N, floor, rm 313A	0.3	-	-	covered
O, floor, hall	0.2	-	-	removed
P, floor, rm 307	-	-	-	DOE survey (1976), no action needed
Q, floor, rm 301	-	-	-	DOE survey (1976), no action needed
R, wall, floor under removed bench, rm 310	3.0	4,000	500	Survey A, wall removed, floor contamination partially removed, covered

Berkeley, California, Site Map



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OFFICE OF LEGACY MANAGEMENT

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Location of Pancake Probe Readings
- *3 = Third Floor*
- *2 = Second Floor*
- *1 = First Floor*
- *B = Basement*

Remediated Contamination
- Found in 1976 (DOE)
- Found in 1981 (UC)

FUSRAP Site Boundary

Original Site Boundary

DATE PREPARED:	FILE NAME:
February 26, 2018	BCA_DELIVERABLE

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